

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 13-23 are pending, with claims 13-23 added, and claims 1-12 cancelled without prejudice or disclaimer by the present amendment. Claims 13 and 21 are independent.

In the Official Action, claims 11-12 were objected to; claims 1, 4 and 7 were rejected under 35 U.S.C. § 112, second paragraph; and claims 1-12 were rejected under 35 U.S.C. § 102(b) as being anticipated by Herring (U.S. Patent Pub. No. 2002/0001317).

Claims 13-21 replace original claims 1-12 to more clearly describe and distinctly claim Applicant's invention. Support for this amendment is found in Applicant's originally filed specification. No new matter is added.

In view of the cancellation of claims 1-12, the current rejections under 35 U.S.C. § 112, second paragraph, and objections are moot.

Briefly recapitulating, new claim 21 is directed to

A method of multiplexing/de-multiplexing multiple services to simultaneously provide the multiple services through a wireless traffic channel, the method comprising steps of:

vocoding voice data with a variable vocoding rate to produce a plurality of voice frames, including vocoding detected speech into a speech frame with a predetermined maximum vocoding rate and vocoding periods without detected speech into a non-speech frame at a vocoding rate lower than the predetermined maximum vocoding rate;

segmenting CMS (concurrent multiple service) data received from a CMS data terminal into data segments;

determining whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result;

if the check result indicates that the vocoding rate *is less than the predetermined maximum vocoding rate*, multiplexing the one data segment and the one voice frame to generate a common frame, and transferring the common frame to a wireless modem for transmission; and

if the check result indicates that the vocoding rate is not less than the predetermined maximum vocoding rate, transferring the one voice frame to the wireless modem for transmission without the one data segment.

Herring describes a method and device for combining voice and data for transmission during a single digital wireless telephone call. The method includes establishing a circuit-switched data call connection from a mobile phone to a destination; routing the call through a pair of modems connected in-line with the call connection path; multiplexing non-voice digital data with vocoded voice digital data to form a multiplexed digital data stream; and sending the multiplexed digital data stream from the mobile phone to the destination through the pair of modems.

FIGs. 3 and 4 are block diagrams of a digital cellular 2-way radio 15 configured for CDMA operation. The radio 15 includes control processor 20, vocoder (for voice encoding and voice decoding) 30, data source multiplexer 40 and demultiplexer 50, an analog-to-digital converter 60 and a digital-to-analog converter 70, a baseband-to-RF converter 80 and an RF-to-baseband converter 90, a power amplifier 100 for the RF signal, a duplexer 110 to separate the transmitted signal from the received signal at the antenna 115, an audio power amplifier 120 for a speaker 130, a microphone 140 and associated circuitry, and a keyboard 150 and display 160.

In Figs. 3 and 4, once the data path is established, the phone 15 begins to transmit the data. The control processor 20 takes digitized and vocoded voice data and the alternate digital data and multiplexes both into a single packet referred to as a frame. This composite frame is

divided into a voice section and an alternate digital data section. Whether the composite frame is of fixed format or variable format is typically described in the header of the frame.

FIG. 5 illustrates a simultaneous circuit-switched voice and data connection. Vocoded voice data is assembled into a stream of data at either a fixed or variable rate depending upon the type of vocoder 30, 30' utilized. Frames (or packets) of vocoded voice data are compiled and transmitted. The transmission rate of the vocoded voice data stream must be less than the maximum circuit-switched channel data rate. This allows bandpace for the vocoded voice, the wireless data channel overhead, and also provides bandpace to transmit additional data from another source, if desired. The vocoded voice and the additional digital data can be included in the same or in separate frames.

Herring notes that some vocoding schemes are variable in rate, meaning that they do not use a fixed amount of bandpace. Herring further notes that the original intention of this variable rate characteristic was to provide a decreased bandpace requirement for the vocoded voice during pauses in speech, or between words. However, in a circuit-switched data connection, the wireless data transmission occurs at a constant bit rate. This means that a variable rate vocoder allows more bandpace for alternate digital data frames when speech is paused or stopped.

Herring also notes that a limitation of the prior art circuit-switched data scheme is that with a normal voice-type phone that is also data capable, the type of call must be identified by the mobile unit before the call is actually answered. However, the mobile unit may not know what type of call is coming in and the call type may not be able to be changed once the call is in progress. Using the system and method of Herring, all mobile-terminated calls become circuit-

switched data calls. The vocoded voice becomes a part of the data. The system providers do not know (and do not need to know) that voice is included in the data.

However, Herring does not disclose or suggest Applicant's claimed step of "determining whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result." Indeed, Herring notes in paragraph [0063] that the transmission rate of the vocoded voice data stream must be less than the maximum circuit-switched channel data rate. This allows bandspace for the vocoded voice, the wireless data channel overhead, and also provides bandspace to transmit additional data from another source, if desired.

Because Herring requires that the transmission rate of the vocoded voice data stream to be set so as to leave bandspace to transmit additional data from another source, it is not necessary for Herring to determine whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result.

Furthermore, Herring does not disclose or suggest Applicant's claimed step of "if the check result indicates that the vocoding rate is not less than the predetermined maximum vocoding rate, transferring the one voice frame to the wireless modem for transmission without the one data segment."

Indeed, Herring notes in paragraphs [0057] and [0060] that the control processor 20 takes digitized and vocoded voice data and the alternate digital data and multiplexes both into a single packet referred to as a frame. This composite frame is divided into a voice section and an

alternate digital data section. When voice is not present more of the frame can be used for alternate digital data.

Thus, while Herring describes varying the amounts of alternate digital data that may be included in the composite frame, Herring never describes “transferring the one voice frame to the wireless modem for transmission without the one data segment.”

In summary, with Applicant’s claimed invention, the one data segment data is *selectively* multiplexed with the vocoded data. In Herring, there is no selective multiplexing because the additional digital data and the vocoder data are *always* multiplexed.

Additionally, contrary to the Official Action, Herring does not make any reference to CMS (Concurrent Multiple Service.) One skilled in the art would know that CMS is a mobile communications technology that transmits voice and data simultaneously in a circuit channel, and is applicable on CDMA, GSM, W-CDMA and IP-based networks.

For reasons similar to those presented above relative to claim 21, Herring also does not disclose or suggest the device recited in Applicant’s new claim 13.

MPEP § 2131 notes that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also MPEP § 2131.02. “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Because Herring does not disclose or suggest all of the features recited in claims 13 and 21, Herring does not anticipate the invention recited in claims 13 and 21, and all claims depending therefrom.

Turning now to new dependent claims 20 and 23, Herring does not disclose or suggest Applicant's claimed vocoding rate lower than the predetermined maximum vocoding rate being 1/8 the predetermined maximum vocoding rate. Thus, for independent reasons, claims 20 and 23 patentably define over Herring.

Finally, not only does Herring not disclose or suggest Applicant's claimed step of "determining whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result," Herring actually teaches away from Applicant's claimed invention by requiring the vocoding rate to be less than the circuit-switched channel data rate. Indeed, in *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740 (2007), the Court noted

"In *United States v. Adams*, 383 U. S. 39, 40 (1966), a companion case to *Graham*, the Court considered the obviousness of a "wet battery" that varied from prior designs in two ways: It contained water, rather than the acids conventionally employed in storage batteries; and its electrodes were magnesium and cuprous chloride, rather than zinc and silver chloride. The Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. 383 U. S., at 50–51. It nevertheless rejected the Government's claim that *Adams's* battery was obvious. The Court relied upon the corollary principle that *when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious*. *Id.*, at 51–52. When *Adams* designed his battery, the prior art warned that risks were involved in using the types of electrodes he employed. The fact that the elements worked together in an unexpected and fruitful manner supported the conclusion that *Adams's* design was not obvious to those skilled in the art."

Thus, Herring is an improper reference upon which to base any future rejection.¹

¹ MPEP 2144.05 "A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention."

REMARKS

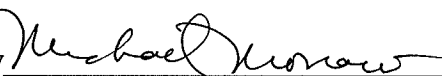
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

By 

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